Output Devices

Characteristics of Output Devices

- **Output devices**: display or produce the results of data processing from a computer system e.g.:
  - Monitor
  - Printer
  - Speakers
  - Projector

Differences between Input & Output Devices

- Input devices send data or instructions to the computer, while output devices receive data from the computer
- Input devices are used for user interaction and data entry, while output devices display or produce the results of data processing

Output Device	Use	Advantages	Disadvantages
Monitor	Displaying computer-generated visual information on a screen	Real-time display, adjustable settings	Power consumption, potential glare
Touch Screen (Output)	Displaying visual information and allowing user interaction with the screen	Intuitive, space-saving	Susceptible to smudges, potential calibration issues
Multimedia Projector	Projecting computer-generated images and videos onto a larger surface	Large display, good for presentations	Requires darkened room, expensive bulbs
Laser Printer	Printing high-quality text and graphics quickly	Fast, high-quality prints, lower cost per page	Expensive initial cost, limited to flat surfaces
Inkjet Printer	Printing text and graphics using liquid ink	Lower initial cost, high-quality prints	Slower, higher cost per page, ink may smudge
Dot Matrix Printer	Printing text and simple graphics using a print head that strikes an ink-soaked ribbon	Low cost, can print multi-part forms	Noisy, low print quality
Plotter	Creating large-format graphics, such as architectural plans and engineering designs	High accuracy, can print on various materials	Slow, expensive, large size
3D Printer	Creating three-dimensional objects by adding material layer by layer	Customisable designs, rapid prototyping	Limited materials, slow process
Speaker	Converting digital audio signals into sound	Range of sizes and power outputs, immersive audio	Can be power-hungry, the sound quality varies
Actuator	Converting electrical signals into physical movement, e.g., motors and valves in robotics	Precise movement, programmable	Requires power, potential mechanical wear

Holographic imaging

- Holographic imaging is a technique that creates **three-dimensional** images by recording and reconstructing light waves
- These images provide a realistic and immersive **visual experience**
- This could be used in medicine to create:
    - MRI scan images
    - Ultrasound images
    - 3D views of our internal organs